COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit No.: VA0091391
Effective Date: February 9, 2009
Expiration Date: February 8, 2014

AUTHORIZATION TO DISCHARGE UNDER THE

VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM

AND

THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act as amended and pursuant to the State Water Control Law and regulations adopted pursuant thereto, the following owner is authorized to discharge in accordance with the information submitted with the permit application, and with this permit cover page, and Parts I and II of this permit, as set forth herein.

Owner:	Lunenburg County
Facility Name:	Lunenburg County Administrative Complex
City/County:	Lunenburg County
Facility Location:	11409 Courthouse Road; Lunenburg, Virginia

The owner is authorized to discharge to the following receiving stream:

Stream:	UT, Couches Creek
River Basin:	Chowan and Dismal Swamp
River Subbasin:	Chowan River
Section:	3f
Class:	III
Special Standards:	none

David B. Brilen for
Steven A. Dietrich, PE, Regional Director, Blue Ridge Regional Office

15 December 2008
Date

9/9/2008 4:07:17 PM

Facility = Lunenburg Co Admin Complex
Chemical = ammonia
Chronic averaging period = 30
WLAa = 20
WLAc = 2.7
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.44770925222404
Average Weekly limit = 5.44770925222404
Average Monthly LImit = 5.44770925222404

The data are:

9

TKN limits are protective.

9/9/2008 4:19:33 PM

Facility = Lunenburg Co. Admin. Complex
Chemical = chlorine
Chronic averaging period = 4
WLAa = 19
WLAc = 11
Q.L. = 100
# samples/mo. = 30
# samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 1000
Variance = 360000
C.V. = 0.6
97th percentile daily values = 2433.41
97th percentile 4 day average = 1663.79
97th percentile 30 day average= 1206.05
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 9.8252545713861
Average Monthly LImit = 7.9737131838758

The data are:

1000

DEPARTMENT OF ENVIRONMENTAL QUALITY
South Central Regional Office
7705 Timberlake Road
Lynchburg, Virginia 24502

MEMORANDUM

To: Robert P. Goode, Water Permit Manager

From: Kyle Ivar Winter, P.E., Water Compliance/Assessment Manager

Subject: Planning Limits for proposed Lunenburg Courthouse STP

Date: July 1, 2003

On May 20th, DEQ received an application for a proposed discharge from the soon-to-be-renovated Lunenburg Courthouse.

The facility is currently served by a 0.0014 MGD elevated sand mound; discussion with the County Administrator, and observation of a seep downhill from the mound, indicate that this disposal unit is at or near the end of its design life. In any event, proposed expansions to the courthouse will exceed the capacity of this disposal unit; to address this, designs for a 0.003 package plant have been submitted to the Department.

On May 29th, SCRO staff performed a site visit to determine discharge limits for the proposed facility.

One issue of concern is that the permit application failed to account for a privately owned farm pond approximately ¼ mile downstream of the proposed outfall. The attached model addresses these by setting limits that will support water quality standards at the point the discharge enters the pond (if, under 7Q10 conditions, the discharge doesn't percolate into the ground prior to reaching the pond).

Another issue of concern with regard to the model is that the proposed outfall will discharge to a broad, grassy swale. This makes setting the appropriate flow width and depth difficult, particularly with such a small discharge volume. This model presumes that the discharge will be free-flowing; I strongly recommend that the flow information be rechecked once the facility is constructed and the discharge commenced.

The proposed discharge is located near the head of a vegetated swale; with no springs or seeps evident, 7Q10 flow is assumed to be zero. The following limits are year-round and are based on a flow of 0.003 MGD:

$CBOD_5$:	15.0 mg/l
TKN:	5.0 mg/l
Dissolved Oxygen:	5.0 mg/l

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to UNNAMED TRIBUTARY TO COUCHES CREEK.

File Information

File Name:	E:\lunenburgchstp.mod
Date Modified:	July 01, 2003

Water Quality Standards Information

Stream Name:	UNNAMED TRIBUTARY TO COUCHES CREEK
River Basin:	Chowan River Basin
Section:	3
Class:	III - Nontidal Waters (Coastal and Piedmont)
Special Standards:	None

Background Flow Information

Gauge Used:	XXX
Gauge Drainage Area:	999 Sq.Mi.
Gauge 7Q10 Flow:	0 MGD
Headwater Drainage Area:	0.001 Sq.Mi.
Headwater 7Q10 Flow:	0 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges:	0 MGD
Incremental Flow in Segments:	0 MGD/Sq.Mi.

Background Water Quality

Background Temperature:	25 Degrees C
Background cBOD5:	2 mg/l
Background TKN:	0 mg/l
Background D.O.:	7.370389 mg/l

Model Segmentation

Number of Segments:	1
Model Start Elevation:	500 ft above MSL
Model End Elevation:	480 ft above MSL

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to UNNAMED TRIBUTARY TO COUCHES CREEK.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	LUNENBURG COUNTY COURTHOUSE STP
VPDES Permit No.:	

Discharger Flow Information

Flow:	0.003 MGD
cBOD5:	15 mg/l
TKN:	5 mg/l
D.O.:	5 mg/l
Temperature:	25 Degrees C

Geographic Information

Segment Length:	0.25 miles
Upstream Drainage Area:	0.001 Sq.Mi.
Downstream Drainage Area:	0 Sq.Mi.
Upstream Elevation:	500 Ft.
Downstream Elevation:	480 Ft.

Hydraulic Information

Segment Width:	0.124 Ft.
Segment Depth:	0.052 Ft.
Segment Velocity:	0.653 Ft./Sec.
Segment Flow:	0.003 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Wide Shallow Arc
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Silt
Sludge:	None
Plants:	None
Algae:	None

"Model Run For E:\lunenburgchstp.mod On 7/1/03 9:22:25 AM"

"Model is for UNNAMED TRIBUTARY TO COUCHES CREEK."
"Model starts at the LUNENBURG COUNTY COURTHOUSE STP discharge."

"Background Data"

"7Q10",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
0,	2,	0,	7.37,	25

"Discharge/Tributary Input Data for Segment 1"

"Flow",	"cBOD5",	"TKN",	"DO",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.003,	15,	5,	,5,	25

"Hydraulic Information for Segment 1"

"Length",	"Width",	"Depth",	"Velocity"
"(mi)",	"(ft)",	"(ft)",	"(ft/sec)"
.25,	.124,	.052,	.653

"Initial Mix Values for Segment 1"

"Flow",	"DO",	"cBOD",	"nBOD",	"DOSat",	"Temp"
"(mgd)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"(mg/l)",	"deg C"
.003,	5,	37.5,	8.66,	8.192,	25

"Rate Constants for Segment 1. - (All units Per Day)"

"k1",	"k1@T",	"k2",	"k2@T",	"kn",	"kn@T",	"BD",	"BD@T"
1.4,	1.761,	20,	22.518,	.4,	.588,	0,	0

"Output for Segment 1"
"Segment starts at LUNENBURG COUNTY COURTHOUSE STP"

"Total", "Segm."				
"Dist.",	"Dist.",	"DO",	"cBOD",	"nBOD"
"(mi)",	"(mi)",	"(mg/l)",	"(mg/l)",	"(mg/l)"
0,	0,	5,	37.5,	8.66
.1,	.1,	5.011,	36.887,	8.612
.2,	.2,	5.029,	36.284,	8.565
.25,	.25,	5.04,	35.986,	8.541

"END OF FILE"

"Model Run For E:\lunenburgchstp.mod On 7/1/03 9:20:54 AM"

"Model is for UNNAMED TRIBUTARY TO COUCHES CREEK."
"Model starts at the LUNENBURG COUNTY COURTHOUSE STP discharge."

"Background Data"

"7Q10"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
0,	2,	0,	7.37,	25

"Discharge/Tributary Input Data for Segment 1"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.003,	16,	5,	,5,	25

"Hydraulic Information for Segment 1"

"Length"	"Width"	"Depth"	"Velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
.25,	.124,	.052,	.653

"Initial Mix Values for Segment 1"

"Flow"	"DO"	"cBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.003,	5,	40,	8.66,	8.192,	25

"Rate Constants for Segment 1. - (All units Per Day)"

"k1"	"k1@T"	"k2"	"k2@T"	"kn"	"kn@T"	"BD"	"BD@T"
1.6,	2.013,	20,	22.518,	.4,	.588,	0,	0

"Output for Segment 1"
"Segment starts at LUNENBURG COUNTY COURTHOUSE STP"

"Total" "Dist."	"Segm." "Dist."	"DO"	"cBOD"	"nBOD"
"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"
0,	0,	5,	40,	8.66
.1,	.1,	4.891,	39.253,	8.612
.2,	.2,	4.815,	38.52,	8.565
.25,	.25,	4.788,	38.159,	8.541

"**"
"!!!THE WATER QUALITY STANDARD IS VIOLATED IN SEGMENT 1!!!"
"**"

"END OF FILE"

Planning Statement for VPDES Permit Application Processing DEQ-SCRO

VPDES	OwnerName	Facility	County
VA0091391	Lunenburg County	Lunenburg County Administrative Complex	Lunenburg

Outfall #: 001

River Basin: Chowan and Dismal Swamp **Receiving Stream:** UT, Couches Creek

Subbasin: Chowan River

Watershed Code: K02R **River Mile:** 2.14

	MGD		MGD
1Q10	0	**HF 1Q10**	0
7Q10	0	**HF7Q10**	0
30Q5	0	**HF30Q10**	0
30Q10	0	**HM**	0

Modeling Notes

*See planning file

WQMP Name No Plan

Statement

TMDL ID None

Impairment Cause

TMDL Due Date

Completed TMDL Information

TMDL Approval Dates

Amanda B. Gray

Amanda B. Gray, Water Planning Engineer

3/12/08

Date

MEMORANDUM
Department of Environmental Quality
South Central Regional Office

7705 Timberlake Road **Lynchburg, Virginia 24502**

Subject: Planning Service Requests for VPDES Permit Application Processing

To: Amanda Gray, Water Planning Engineer

From: Frank Bowman

Date: March 10, 2008

Copies: Facility Permit Processing File, Planning File

The request for information from the planning section is to be made at the time of sending the reissuance reminder letter to the facility or, for an issuance or modification, at the time of application/modification request receipt.

FACILITY NAME: Lunenburg County Administrative Complex STP

VPDES PERMIT NO. VA0091391 EXPIRATION DATE: February 8, 2009

PERMIT ACTION: Issuance (Reissuance) Modification

PERMIT TYPE: Major (Minor) (Municipal) Industrial Storm Water TMP TRE

PERMIT WRITERS: ATTACH THE FOLLOWING MAPS AND INFORMATION

- **Topo map with facility location and outfall locations clearly marked (include any proposed outfalls)**
- **Site diagram for facilities with multiple outfalls**
- **Description or map showing effluent flow path if not apparent on topo map**
- **The outfall numbers, latitude, longitude, receiving stream and topo name in the table below (use an additional sheet if there are more outfalls)**

Outfall No.	Latitude	Longitude	Receiving Stream	Topo Name
001	36° 57' 40"	78° 15' 58"	Couches Creek, UT	Kenbridge West

_√_ Check if a new FLOW FREQUENCY DETERMINATION is being requested.
If checked, provide the previous flow frequency determination memo

____ Check if a new or revised WATER QUALITY MODEL is being requested.
If checked, provide the facility flow and the previous limitations page

DATE INFORMATION NEEDED April 1, 2008

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
South Central Regional Office - Water Planning
7705 Timberlake Road Lynchburg, VA 24502 434/582-5120

SUBJECT: Flow Frequency Determination
Lunenburg County Administrative Complex STP – VA#0091391

TO: Frank Bowman

FROM: Amanda Gray

DATE: March 12, 2008

COPIES: File

The Lunenburg County Administrative Complex STP discharges to an unnamed tributary of Couches Creek in Lunenburg County, Virginia. Flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The flow frequencies for the receiving stream were determined by inspection of the USGS Kenbridge West Quadrangle topographic map. The map depicts the stream as intermittent. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, 30Q10, HF1Q10, HF7Q10, HF30Q10 and harmonic mean.

If you have any questions regarding this analysis please feel free to contact me.